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> "But at least it has made clear that the problem is one of choosing the appropriate social arrangement for dealing with the harmful effects. All solutions have costs [...]. Satisfactory views on policy can only come from a patient study of how, in practice, the market, firms and governments handle the problem of harmful effects." (Coase, 1960, p. 18)

Introduction.

The extraordinary influence of The Problem of Social Cost" is now well acknowledged. Beyond the official recognition coming with the award of the Alfred Nobel Memorial Prize in Economic Sciences as well as the myriad citations, what may matter most, as emphasized by Mary Shirley (2013), is that in introducing the concept of 'transaction costs', Coase initiated a revolution in the way economists and social scientists should look at the organization of economic activities in a market economy. Actually, the concept of transaction could well be considered one of the most important in economic theory, together with the concept of the division of labor. As emphasized by Coase (1998), the two concepts complement each other. In order to take advantage of the division of labor economic actors must specialize their activity; this is sustainable and beneficial if and only if they can organize transactions among them at a cost that is less than the expected benefits.

Paradoxically, this organizational dimension that Coase pinpointed as "The Institutional Structure of Production" in his Nobel Lecture has been largely neglected in the literature inspired by "The Problem of Social Cost." In what follows, I would like to show how this missing dimension is rooted in some misinterpretations of the 1960 paper (section 1) and what consequences it should have in partially redefining the research agenda sketched by Coase in his paper (section 2).

Section 1: A black hole rooted in misinterpretations

As is now well known, the first five sections of "The Problem of Social Cost" focus on different examples –several became famous because of the revolutionary view they introduced on pollution, etc. in order to establish the key concept of 'transaction.' The issue at stake is not trivial: the economic tradition is built on the very idea that agents are buying or selling physical (or virtual) assets, that is, goods and services, and this trading activity determines what is going to be produced. Coase introduced a radically different perspective: what happens in markets is the transfer of rights. Therefore, a key issue for understanding market economies is to consider the definition and allocation of rights and the mechanism of their transfer.

To make the point, Coase introduced the often cited example of the cattle raiser and the farmer, in which the herd of the former can produce harmful effects on the crop of the latter. One solution would be of course for the farmer to fence his fields, but the cost of doing so and of the maintenance could well exceed the expected benefits from the crop. In a world in which "the price system works smoothly," (p. 6) that is, at no significant costs, parties would have a strong incentive to reach a mutually satisfactory solution through the bargaining of their rights, ending up in a situation that would be optimal for both of them. In Coase's words, "…there is clearly room for a mutually satisfactory bargain…" (p.4) in which each party can use the signals of the price system to balance costs and benefits and reach an ultimate result that is independent of the legal position, that is, independent of the institutional environment. This is the world of zero transaction costs, in which rearrangement of rights will always take place and lead to increase in value of production. It has been encapsulated in what Stigler (1966, p. 113) called the "Coase theorem".

There are three important consequences to this representation of a world in which exchanges are costless.

First, this idea of a world with zero transaction costs immediately caught the attention of theoreticians because it greatly facilitates model building. Indeed, this formulation of the Coase theorem, based on the assumption that there is no cost in the running of the price system, allows to establish the existence and stability of a general equilibrium across different markets without having to take into account issues such as the institutions that would be required for the system to work. Notwithstanding numerous warnings by Coase (the assumption of zero transaction costs is "a very unrealistic assumption" (1960 p. 15). "My conclusion: let us study the world of positive transaction costs." (1991, p.9) as well as by his followers (e.g., North, 1990, chap. 4), a considerable part of the literature in economics, particularly the most advanced in terms of modeling, continues to consider a world with transaction costs equaling zero. However, as soon as these costs are introduced into the picture, the representation of economic activities radically changes: institutions, particularly the legal regime defining and implementing rights, matter and the choice among alternative ways of organizing transactions becomes a puzzle.

Second, a representation of the world without transaction costs opens the way to optimal bargaining solutions conditional to well-defined rights, without having to take into account the nature and allocation of those rights. Not long after the publication of "The Problem of Social Cost," Alchian (1965) published his influential paper on property rights. Maybe due to the interaction of these two approaches, economists building models of optimal transaction mechanisms based on the so-called "Coase theorem" rapidly associated the definition of rights to the definition of property rights and, progressively, even more restrictively to the definition of private property rights.[1] A sort of reversal of the Coase reasoning progressively prevailed that goes the following way: if (private) property rights are well defined and if the price system runs smoothly, that is: if competition guarantees efficient markets, then transaction costs will be equal to or close to zero and an optimum could be reached. A normative position soon derived from this reasoning, as so well illustrated by the creation of markets of rights to pollute: if rights are well defined and if an efficient market mechanism is implemented, optimal solutions could be reached. Markets would then be *the* solution. This is not the direction Coase wanted to follow. As he repeatedly emphasized, what he was concerned with is a world in which markets do not work that smoothly and in which transaction costs are significant enough to make alternatives to markets plausible solutions that need to be assessed on their own merit.

Third, the discussion of the Pigovian solution to the existence of harmful effects (or "externalities") occupies a significant place in the 1960 paper; it is used as a sort of benchmark to illustrate the flaws in standard welfare economics. The point Coase wanted to make is quite straightforward, notwithstanding developments that may look here and there a bit over-elaborate for those not familiar with Pigou and not aware of his deep influence on policy makers at the time the 1960 paper was written. Because Pigou developed his arguments in a world with zero transaction costs, there is no logical foundation to the intervention of government that he recommends. In such a world, bargaining among agents would allow reaching the appropriate solution while the Pigovian solution of taxes or subsidies to reduce externalities, e.g., pollution, could have worst harmful effects than those they intend to circumvent. The conclusion derived by too many economists building on this discussion by Coase of the Pigovian approach is that if rights are well defined, markets always outperform government intervention. Once more this goes the opposite direction to the one pointed out by Coase: Pigou is wrong and his legitimizing of government intervention is misleading *because* he shares the basic assumption of general equilibrium models, which is that transactions are costless. But if transaction costs are positive, which they are in the real world, the situation is totally different.

Section 2: An ignored dimension to the Coasian research agenda: organizational issues.

So, what happens if transaction costs are positive? Let me first emphasize, as Coase did repeatedly, that this is the world in which Coase is interested because this is the one we live in. Section VI of "The Problem of Social Cost" is central in that respect: it is in this section that Coase shifts the analysis from the hypothetical world of zero transaction costs to a world with costly transactions to organize.

If transaction costs are positive, two major consequences immediately prevail that must be taken systematically into account in economic analysis: (1) "In these conditions the initial delimitation of legal rights does have an effect on the efficiency with which the economic system operates." (p. 16); (2) "It is clear that an alternative form of economic organisation which could achieve the same result at less cost than would be incurred by using the market would enable the value of production to be raised." (p. 16). The first consequence has attracted considerable attention among legal scholars,

[1] Interestingly enough, there is not a single explicit reference to property rights in "The Problem of Social Costs" Coase seems to be primarily concerned with a very general concept of rights, that is: all rights that can be transferred, thus allowing the organization of economic activities.

since Coase explicitly emphasized “the crucial importance of the legal system in this new world” (Coase, 1991, p. 9). Unfortunately, the second consequence did not receive the same attention among economists. So let me turn to the issues at stake.

After having showed that the trade-off developed by Pigou (and the Pigovian tradition) between markets and government as alternative solutions to reduce or eliminate harmful effects such as those coming out of pollution is plainly wrong under the assumption of zero transaction costs, Coase turns to possible solutions when economic agents operate in a world of positive transaction costs. Under this assumption, parties can usually not bargain without costs: the transfer of rights requires mechanisms that are costly. Beside the legal system, which provides the background to all transfer of rights, there are alternative modalities of organization through which the exercise of rights, their possible harmful effects, and their trading can be done. When extensive competitive conditions are present or can be implemented, markets can provide adequate support. However, monitoring rights through market arrangements is not without costs: there are searching, contracting, and implementing costs involved.

When these costs are too high, an alternative solution, initially explored in the famous paper on “The Nature of the Firm” (1937) is to internalize: firms use “administrative decision” process to internally allocate rights and organize production and exchange, thus avoiding the costs of going through markets. As noted by Radner (1986) firms can partially be understood as ways to reduce costs in the delivery of “quasi-public goods.” However, administrative procedures have their own costs: hence the now classical trade-off, explored in depth by Williamson (1975; 1985) between markets and firms (hierarchies). There are situations though, for example when rights are blurred or when harmful effects are difficult to measure, when “… the firm is not the only possible answer to this problem.” (1960, p.17).

Coming back to the example of pollution, Coase then considers a third possibility to monitor harmful effects: “direct government regulation.” Indeed, “… it is clear that the government has powers which might enable it to get some things done at lower cost than could a private organization.” (1960, p. 18). Government intervention can take different forms, e.g. the trade-off between taxes or subsidies to reduce pollution. At this point one could wonder: what is the difference from the Pigovian tradition of public intervention? Actually the difference is very fundamental: in the Coasian perspective, government is not a benevolent agent trying to do it’s best to solve the problem of harmful effects; government has its own agenda, which opens room to a political economy analysis, and above all, its interventions imply transaction costs.

As stated in the title of section X of “The Problem of Social Cost”, the existence of these alternative solutions (and possibly other ‘social arrangements’) requires “a change of approach,” actually a radical one. Comparing “laissez-faire” (markets will solve it all) with a “kind of ideal world” in which government would take care of the harmful effects goes nowhere. There is no optimal solution per se. When confronted with a problem, e.g., a specific form of pollution, economists should compare ‘alternative social arrangements’ that could provide (partial) solution and assess their respective costs. Indeed, “… the proper procedure is to compare the total social product yielded by these different arrangements” (1960, p. 34) in order to identify the most appropriate solution and/or policy.

To sum up, there is no ideal solution to the harmful effects, either on another party or on an entire community, involved in almost all economic activities. All possible responses involve transfer of rights (e.g., rights to pollute) and, consequently, transaction costs. The appropriate method therefore requires: one, to identify the ***alternative arrangements*** (markets, firms, government, hybrids …) that could be relevant to deal with the problem at stake; second, to assess the ***comparative*** costs and gains of these alternative solutions. To illustrate, to monitor the 'tragedy of the commons' in the fishing industry one should consider alternative solutions (e.g., laissez-faire, relying on collective action, imposing government regulation, creation of a market for Individual Transferable Quotas, etc.) and assess their comparative costs and benefits. There is a long, long way to go before economists and the policy-makers they inspire reach this point.

Conclusion.

Reading carefully "The Problem of Social Cost" over fifty years after its publication, one can measure the relevance of the research agenda it opened … and how far we are from having fulfilled this agenda. If we look at the debates surrounding environmental policies, it is astonishing to see how little is done to identify precisely the alternative solutions that could be relevant for dealing with a specific problem and, even worst, how little is done to assess comparatively the costs and benefits of these alternative solutions. The debates remain very much embedded in the Pigovian/welfare tradition, with ideological positions often prevailing as the last resort among those who view market arrangements as the solution and those who consider that only government intervention can discipline parties adequately and provide appropriate answers to the harmful effects resulting from economic actions.

So, much remains to be done to meet the final message from "The Problem of Social Cost":

> "Furthermore we have to take into account the costs involved in operating the various social arrangements (whether it be the working of a market or of a government department), as well as the costs involved in moving to a new system. In devising and choosing between social arrangements we should have regard for the total effect. This, above all, is the change in approach which I am advocating." (1960, p. 44)

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